

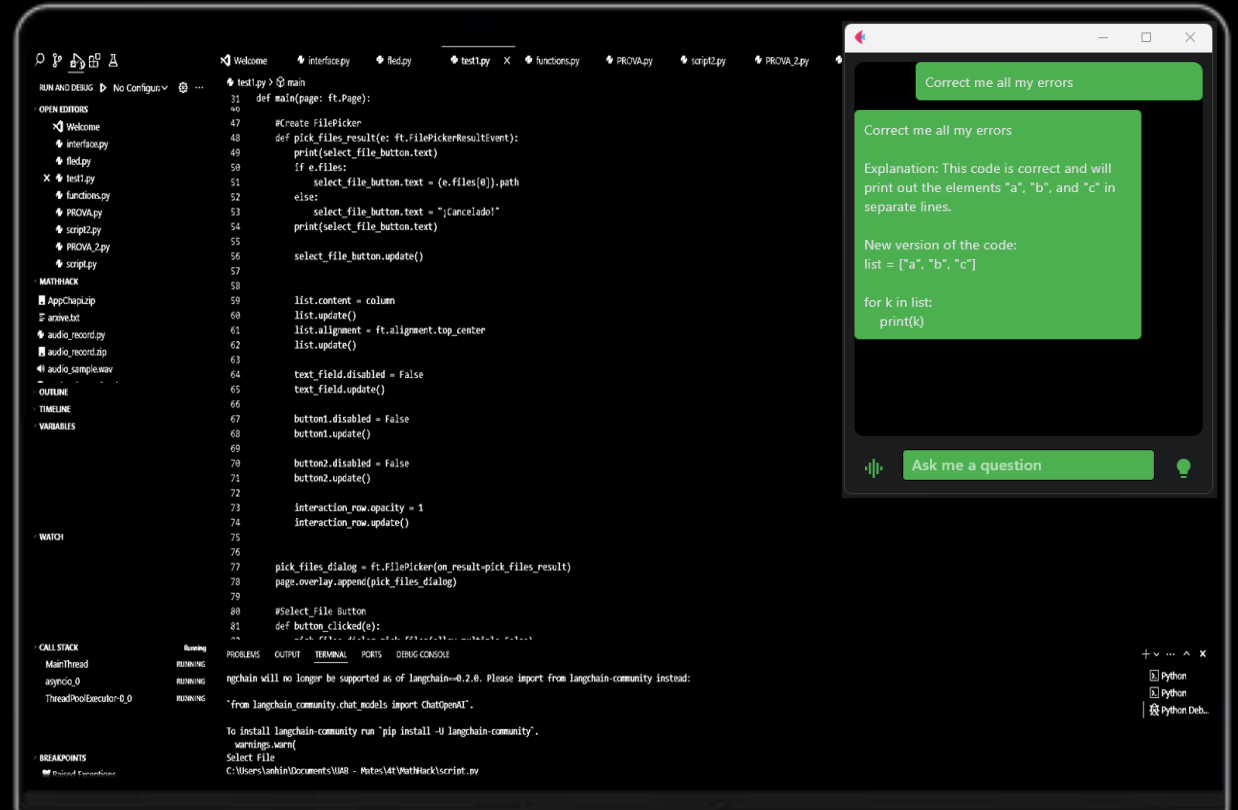
# CHAPY

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## GenAI BASED PYTHON PROGRAMMING ASSISTANT PROTOTYPE

**UAB**  
Universitat Autònoma  
de Barcelona

**NTT DATA**



# TEAM MEMBERS

CHAPY



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# INTRODUCTION TO **UAB THE HACK!**

CHAPY



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## CHATBOT

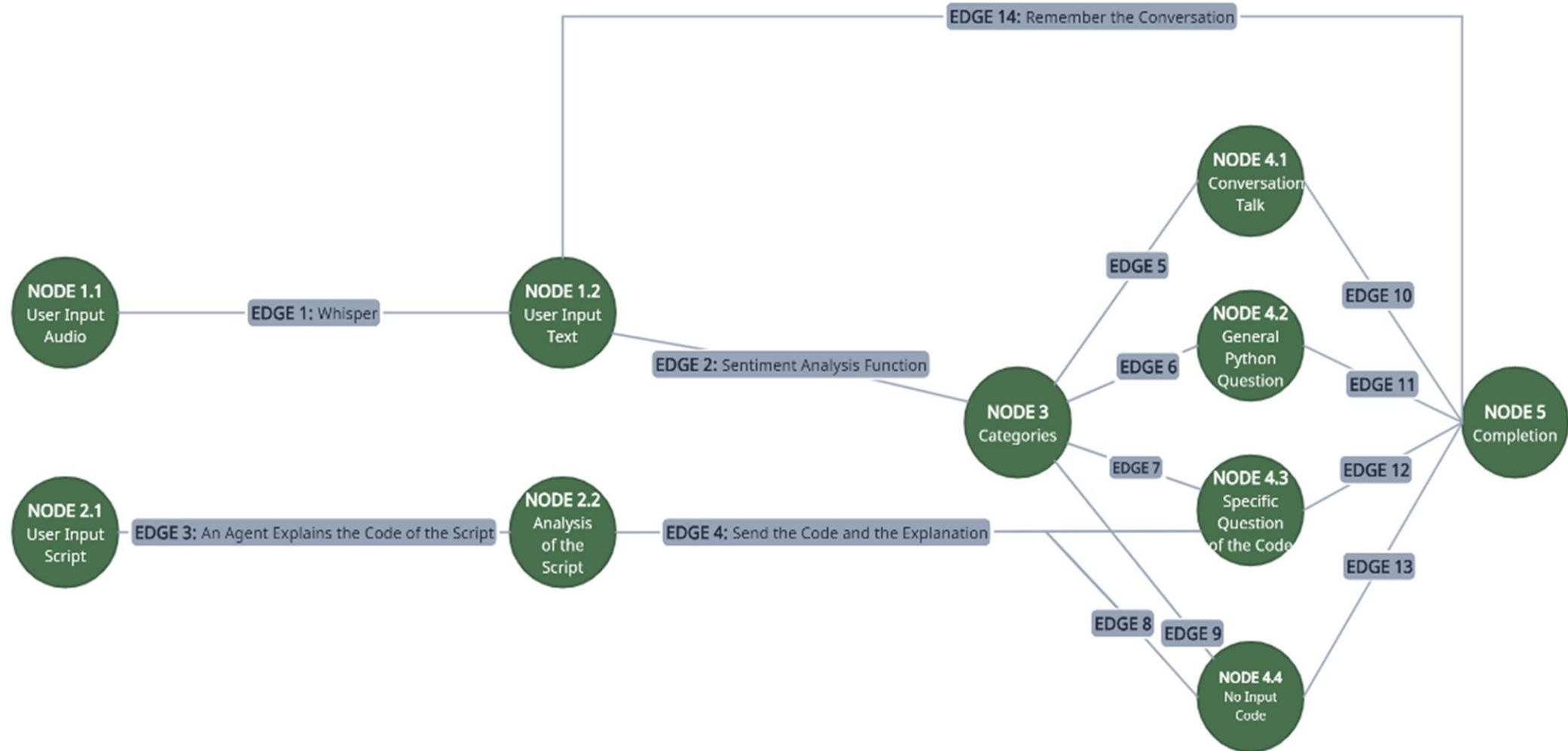
Implement a simple and effective Python code assistance tool based on Generative AI

## RESOURCES OPTIMIZATION

Minimize time, computational and economic costs to users

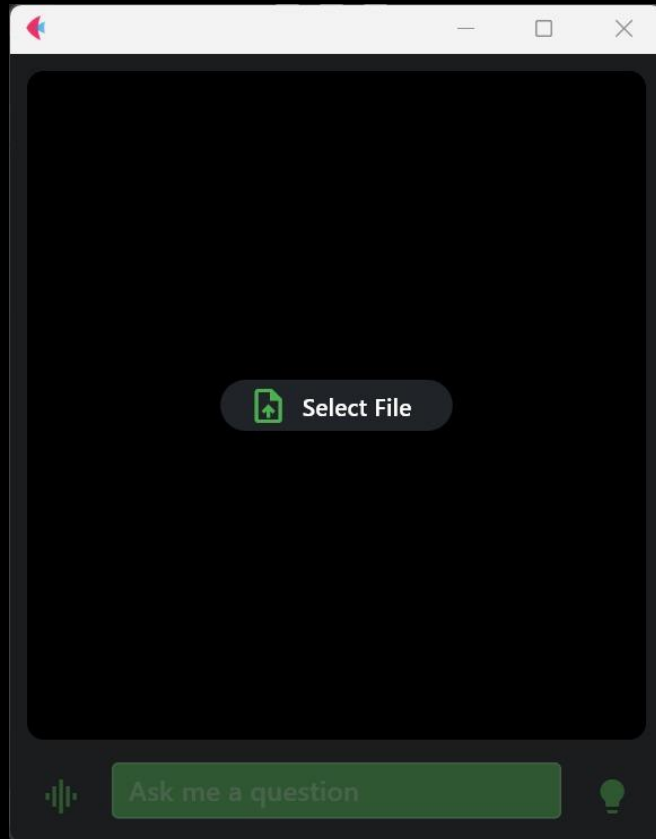
## TEXT & AUDIO

Allow users to interact with the program either via text or audio



# IMPLEMENTATION OF THE INTERFACE

CHAPY



# MAIN RESULTS AND DISCUSSION

CHAPY

The image displays three sequential screenshots of the CHAPY (Chat Assistant for Python) interface, which is designed to help with Python programming questions. Each window features a dark background with light blue input and output boxes, a microphone icon, and a lightbulb icon.

**Window 1:** The user asks, "Hi, who are you?". The assistant responds: "I am an assistant designed to help you with programming in Python. Do you have any questions or doubts about Python that I can assist you with?". The user then asks, "What is a bannana?". The assistant replies: "I apologize, but as an assistant for programming in Python, I am not equipped to answer questions about non-programming related topics. Is there anything else I can assist you with regarding Python?".

**Window 2:** The user asks, "How can I implement a for loop in Python?". The assistant explains: "To implement a for loop in Python, you can use the 'for' keyword followed by a variable name, the 'in' keyword, and then the iterable object that you want to loop through. For example: `for i in range(10): print(i)`". It further states: "This will print the numbers 0 through 9. You can also use a for loop to iterate through a list, dictionary, or any other iterable object."

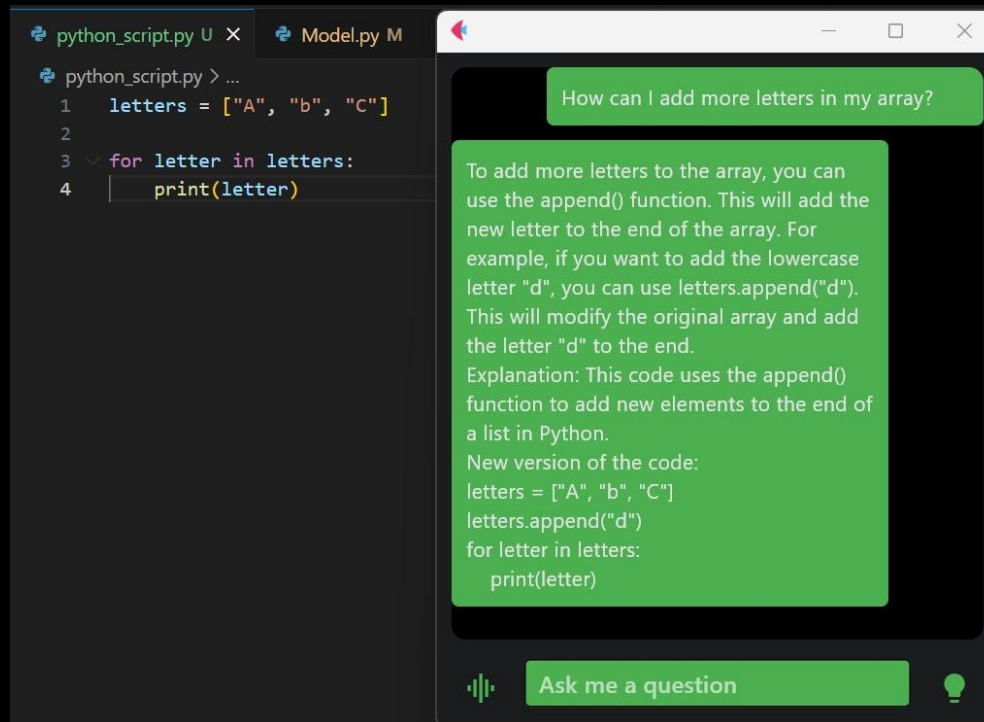
**Window 3:** The user asks, "How can I add more letters in my array?". The assistant explains: "To add more letters to the array, you can use the `append()` function. This will add the new letter to the end of the array. For example, if you want to add the lowercase letter 'd', you can use `letters.append('d')`. This will modify the original array and add the letter 'd' to the end. Explanation: This code uses the `append()` function to add new elements to the end of a list in Python. New version of the code: `letters = ['A', 'b', 'C']`, `letters.append('d')`, `for letter in letters:`, `print(letter)`".

In the background of the third window, a code editor is visible with the following Python code:

```
python_script.py U x Model.py M
python_script.py > ...
1 letters = ["A", "b", "C"]
2
3 for letter in letters:
4     print(letter)
```

# MAIN RESULTS AND DISCUSSION

## CHAPY



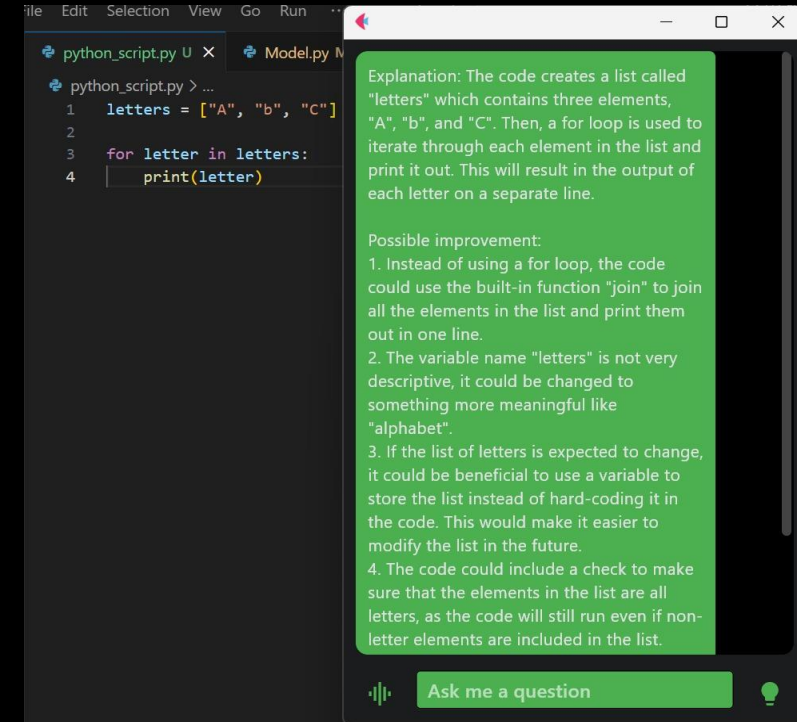
The screenshot shows the CHAPY interface with a code editor on the left and a chat window on the right. The code editor contains a Python script with the following code:

```
python_script.py > ...
1 letters = ["A", "b", "C"]
2
3 for letter in letters:
4     print(letter)
```

The chat window displays the question: "How can I add more letters in my array?". The response explains that the `append()` function can be used to add new elements to the end of a list. It provides an example of adding the lowercase letter "d" and shows the modified code:

```
letters = ["A", "b", "C"]
letters.append("d")
for letter in letters:
    print(letter)
```

At the bottom of the chat window, there is a green button labeled "Ask me a question" and a lightbulb icon.



The screenshot shows the CHAPY interface with the same code editor on the left. The chat window displays an explanation of the code and four possible improvements:

Explanation: The code creates a list called "letters" which contains three elements, "A", "b", and "C". Then, a for loop is used to iterate through each element in the list and print it out. This will result in the output of each letter on a separate line.

Possible improvement:

1. Instead of using a for loop, the code could use the built-in function "join" to join all the elements in the list and print them out in one line.
2. The variable name "letters" is not very descriptive, it could be changed to something more meaningful like "alphabet".
3. If the list of letters is expected to change, it could be beneficial to use a variable to store the list instead of hard-coding it in the code. This would make it easier to modify the list in the future.
4. The code could include a check to make sure that the elements in the list are all letters, as the code will still run even if non-letter elements are included in the list.

At the bottom of the chat window, there is a green button labeled "Ask me a question" and a lightbulb icon.



**PERFORMANCE  
IMPROVEMENT**

**GPT-4o  
SUPPORT**

**DIFFERENT  
PROGRAMMING  
LANGUAGES**

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